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10/727,414	12/04/2003	Philip J. Ellerbrock	038190/270524	7718

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EXAMINER
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DANG, KHANH

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/727,414

Applicant(s)

ELLERBROCK ET AL.

Examiner

Khanh Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20031204.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "independent of a processor" is unclear. The "bus controller" clearly involves a processor, and the network interface is operationally dependent from the processor (bus controller). If the phrase "independent of a processor" is supposed to mean that there is no processor inside the network interface, then such a phrase is, at best, unclear in light of 35 USC 112, 2<sup>ND</sup> paragraph.

In claim 2, the phrase "said bus controller generates a synchronous clock signal which is provided to said network device interface such that said network device interface operates independent of a clock" is unclear. The interface simply cannot be "independent" from the clock, since it is supplied with a clock signal from the bus controller. If the phrase "said bus controller generates a synchronous clock signal which is provided to said network device interface such that said network device interface operates independent of a clock" is supposed to mean that there is no clock inside the network interface, then such a phrase is, at best, unclear in light of 35 USC 112, 2<sup>ND</sup> paragraph. However, as depicted in the drawings and disclosed in the specification, the interface does involve a clock/clock signal

With regard to claim 7, the phrase "said network device interface communicates with both said bus controller and a data channel connected to said network device

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interface independent of a processor” is unclear. The interface simply cannot be “independent” from the processor, since the bus controller itself can be interpreted as a processor. If the phrase “said network device interface communicates with both said bus controller and a data channel connected to said network device interface independent of a processor” is supposed to mean that there is processor in the network interface, then such a phrase is, at best, unclear in light of 35 USC 112, 2<sup>ND</sup> paragraph.

With regard to claim 12, the phrase “independent of a processor” is unclear. See discussion above.

With regard to claim 13, the phrase “independent of a processor” is unclear. See discussion above.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15, 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Karolys et al. (Karolys).

As broadly drafted, these claims do not define any structure that differs from Karolys et al.

With regard to claim 1, Karolys discloses a serial, multiplexed communications system (shown generally at Fig. 2, note that in Karolys, [e]ach sensor transfers analog or digital sensed data one at a time under control of the bus converter device through the common bus." Thus, it is clearly a serial, multiplexed communication. Note also that Fig. 1 clearly shows the need for a multiplex when there is multiple communications from a plurality of sensors) comprising: a bus controller (BCM 28 connected to a Host 14) for issuing a plurality of commands; a plurality of data channels (constituted by a plurality of sensors or actuators, see at least column 1, line 50-61; column 3, lines 51-60; column 5, lines 22-30) for performing predefined functions in response to the commands; a common digital bus (24) interconnecting said bus controller (BCM) and said plurality of data channels (constituted by a plurality of sensors or actuators, see at least column 1, line 50-61; column 3, lines 51-60; column 5, lines 22-30) for supporting communication therebetween; and a plurality of network device interfaces (TBIM 26), one of which is associated with each data channel for interconnecting said respective data channel with said common digital bus (24) and communicating information from said bus controller (BCM 28 connected to a Host 14) to said data channel, wherein at least one of said network device interfaces (TBIM 26) comprises a state machine and is independent of a processor (it is clear from at least Fig. 3 and description thereof, the TBIM 26 comprises the so-called "state machine" and is independent of a processor).

With regard to claim 2, it is clear from at least Fig. 4 and description thereof, the bus controller (28 connected to host 14) generates a synchronous clock signal (using 206, for example) which is provided to said network device interface (TBIM 26) such that said network device interface operates independent of a clock (it is clear that TBIM does not include any clock or is independent of a clock).

With regard to claim 3, it is clear from above that the plurality of data channels are selected from the group consisting of sensors and actuators.

With regard to claim 4, it is clearly inherent that the network device interface (TBIM 26) must have a receiver for receiving messages from said bus controller (28 connected to host 14) via said common digital bus (24). See additionally "TX" and Rx" in Fig. 4. Note also that the term "receive" is used extensively throughout Karolys to describe how message is communicated between devices.

With regard to claim 5, it is clearly inherent that the network device interface (TBIM 26) must have a device interface so that it can provide commands to a data channel (constituted by a plurality of sensors) connected thereto and receive data from the associated data channel.

With regard to claim 6, it is clearly inherent that the network device interface (TBIM 28) must have a transmitter for transmitting messages to said bus controller (28 connected to host 14) via said common digital bus (24). See additionally "TX" and Rx" in Fig. 4. Note also that the term "transmit" is used extensively throughout Karolys to describe how message is communicated between devices.

With regard to claim 7, it is clear from at least Fig. 3 and description thereof, the network device interface (TBIM 26) communicates with both said bus controller and a data channel connected to said network device interface independent of a processor.

With regard to claim 8, it is well-known that ASIC comprises an integrated circuit (IC) with functionality customized for a particular use (equipment or project), rather than serving for general-purpose use. For example, a chip designed solely to run a cash register is an ASIC. In contrast, a microprocessor is not application-specific, because users can adapt it to many purposes. In the instant case, it is clear that the IC of network device interface of Karolys is customized for a particular use (for interfacing with sensing/actuating devices), and thus it is clearly an ASIC. Note that in Karolys, the bus controller connected to the network interface device is an ASIC.

With regard to claim 9, it is clear from discussion above that the network device interface (TBIM) receives commands from said bus controller (28 connected to host 14) and controls the data channel connected to said network device interface based on the command.

With regard to claim 10, it is clear from discussion above that the network device interface (TBIM 26) receives data from said bus controller (28 connected to host 14) and provides the data to the data channel connected to said network device interface.

With regard to claim 11, it is clear from discussion that the network device interface (TBIM 26) receives data from the data channel connected to said network device interface, and wherein said network device interface sends the data to said bus controller (28 connected to host 14).

With regard to claims 12-14, see discussion above.

With regard to claim 15, see discussion above. Note also that in Karolys, there is only one synchronized clock for providing clock rate for messages of 8 bits and 11 bits.

With regard to broadly drafted claim 17, it is clear that in Karolys receiver receives messages comprised of a plurality of bits (8 bits or 11 bits), wherein said receiver further receives a synchronous clock signal (provided by the real time clock) comprised of a plurality of clock pulses (it is clear that clock signal is represented by pulses), and wherein said device interface provides commands to the associated data channel at a predetermined time (schedule time in Karolys) as defined by a respective clock pulse (it is clear that in digital communication, "time" is represented by pulses) which, in turn, is defined based upon a predetermined relationship to a respective bit of the message (whether 8 bit or 11 bit message and the number of pulses varies depending on the number of bits).

With regard to claims 18-20, see discussion above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

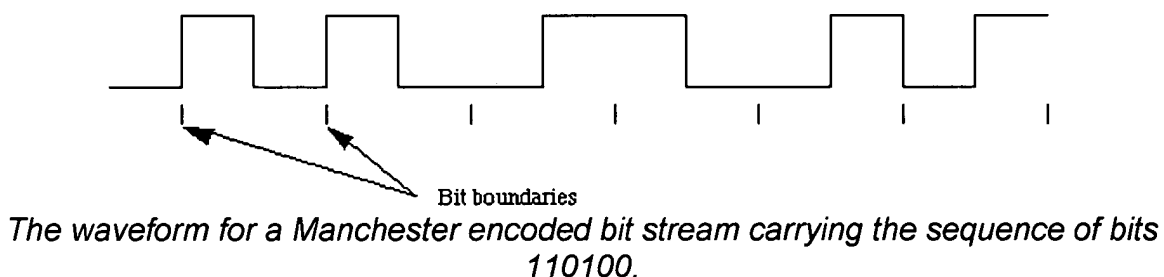
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys.

Karolys, as discussed above, discloses the claimed invention including serially transmitting and receiving messages. Karolys does not disclose that such messages comprise of a plurality of bits (8 bits or 11 bits) having a value defined by a transition between first and second states, and wherein said device interface provides commands to the associated data channel at a predetermined time relative to the transition that defines the value of a respective bit of the message. However, such encoding technique is old and well-known in the art as Manchester encoding.

Manchester encoding, long been considered as an alternative to NZR encoding, is a binary signaling mechanism that combines data and clock into "bit-symbols." Each bit-symbol is split into two halves with the second half containing the binary inverse of the first half; a transition always occurs in the middle of each bit-symbol.

The following diagram shows a typical Manchester encoded signal with the corresponding binary representation of the data (1,1,0,1,0,0) being sent.



In the Manchester encoding shown, a logic 0 is indicated by a 0 to 1 transition at the center of the bit and a logic 1 is indicated by a 1 to 0 transition at the center of the bit. Note that signal transitions do not always occur at the 'bit boundaries' (the division

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between one bit and another), but that there is always a transition at the center of each bit. A Manchester encoded signal contains frequent level transitions which allow the receiver to extract the clock signal and determine the timing. See also "Manchester Encoding," cited below as evidence of well-known prior art. Further evidence can be found in Hanna et al., Fig. 2, and description thereof, column 1, lines 22-23; column 1 line 35 to column 2, line 13.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Manchester encoding instead of NZR encoding in the communication system of Karolys, since the Examiner takes Official Notice that Manchester encoding, as explained above, is old and well-known in the art (as an alternative to NZR encoding); and using Manchester encoding instead of NZR encoding in Karolys only involves ordinary skill in the art for the purpose of providing a "number of advantages" over the NZR encoding (see "Manchester Encoding," cited below).

U.S. Patent Nos. 5,475,687 to Markkula, Jr. et al., 4,449,119 to Hanna et al., 6,574,515 to Kirkpatrick et al., 4,115,847 to Osder et al., and "Manchester Encoding" are cited as relevant art.

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 703-308-0211.



**Khanh Dang**  
Primary Examiner